

EXHIBIT S-24-1.2



BEALL PIPE AND TANK CORP.

12005 N. BURGARD STREET
PORTLAND 3, OREGON



HOWARD J. WING
SALES REPRESENTATIVE

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ANAHEIM, CALIFORNIA 92805

BEALL PIPE & TANK CORPORATION

PORTLAND PLANT P# 503 286 3631

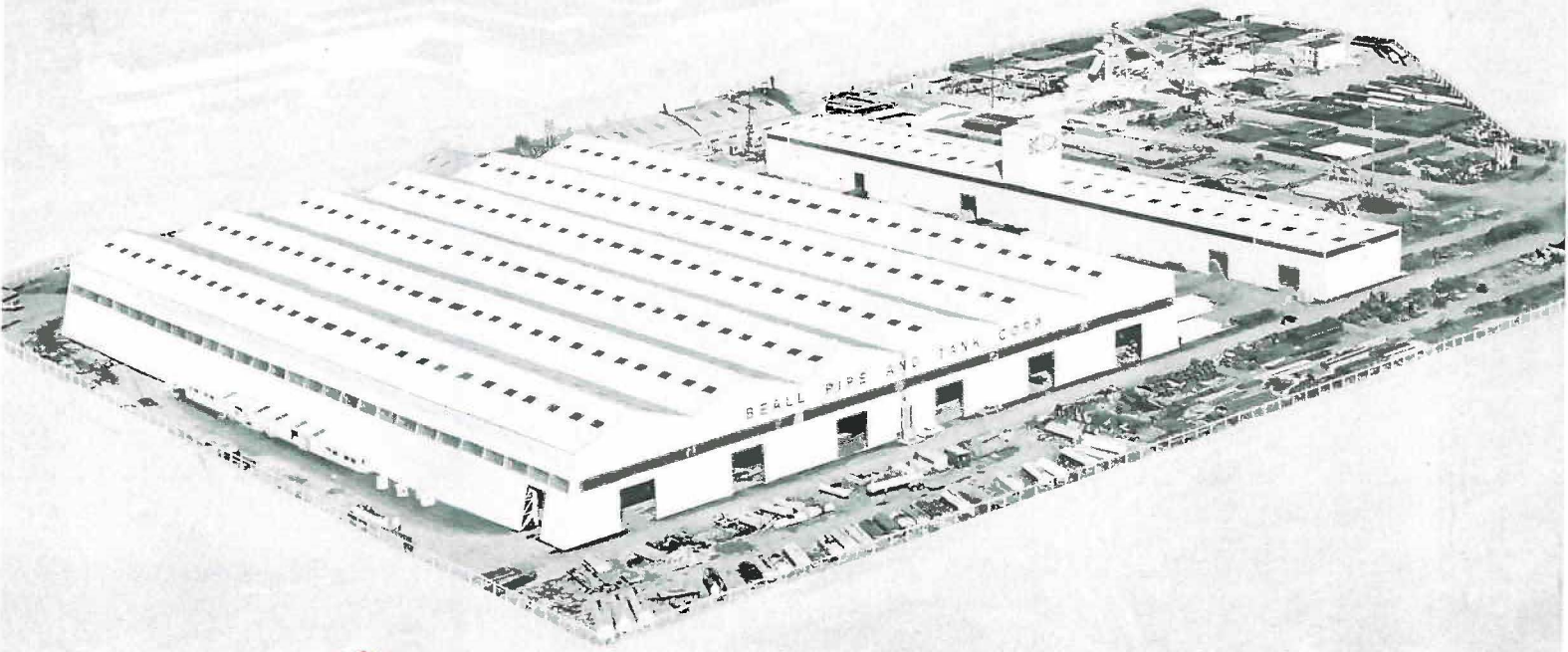


straight seam resistance
and fusion welded

STEEL PIPE

for oil, gas and water
transmission and
distribution lines

NWP0032907



STEEL PIPE CENTER OF THE PACIFIC NORTHWEST

This completely new Beall plant houses the most modern pipe mill equipment available for the manufacture of straight-seam resistance and fusion welded steel pipe.

Here, spread over an area of approximately 25 acres, is an entire facility for producing pipe from flat bare metal to finished specifications; a plant with production capacity of many "miles of pipe per day."

Advanced engineering, fabrication experience, skilled workmanship, precision control and reliable customer service for over 60 years, have made Beall Pipe and Tank Corporation the Northwest's largest supplier of welded steel pipe for gas, oil and water transmission and distribution lines.

- SECTION I . . . GENERAL—PIPE MANUFACTURE
- SECTION II . . . API PIPE, COATINGS, FITTINGS
- SECTION III . . . AWWA-ASTM PIPE, COATINGS, FITTINGS, MORTAR LINED
AND COATED PIPE
- SECTION IV . . . IRRIGATION PIPE, COATINGS, FITTINGS
- SECTION V . . . MISCELLANEOUS PIPE AND CULVERT

LONG AND ECONOMICAL SERVICE LIFE

Beall welded steel pipe is recognized throughout the pipeline industry, and where capacity, strength, ductility and resilience is of importance there is no substitute for Beall pipe. The use of Beall lined and coated steel pipe in transmission and distribution lines adds a durability and economy factor of primary importance.

CONTINUOUS ELECTRIC WELDING JOINS PIPE

Beall straight-seam, electric fusion welded steel pipe is straight, true and of constant diameter. The electrical fusion of pipe metal at the joint creates a perfect bond, produces a weld that is stronger than the pipe itself.



PRECISION CONTROLLED WELDING PRODUCES PIPE TO SPECIFICATIONS

Pipe from 2" to 16" OD is joined by High Frequency Resistance welding. In this process the entire area heated to a point of fusion is held to .006 of an inch on each side of the welded seam.

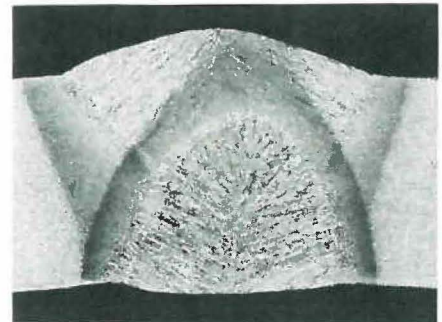
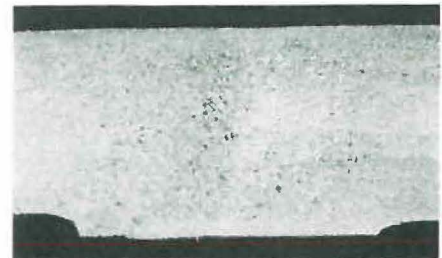
Beall welded steel pipe can be made to meet any of the following specifications:

API	5L	grade A and B
API	5LX	grade X42, X46, X52 and X60
ASTM	A135	grade A and B
ASTM	A120	grade A and B
ASTM	A252	grade 1, 2, or 3
AWWA	C201	

The larger pipe sizes, 18" OD and above, are joined by Electric Fusion welding, and can be made to meet any of the following specifications:

ASTM	A139	grade A and B
API	5L	grade A and B
ASTM	A252	grade 1, 2 and 3
AWWA	C201	

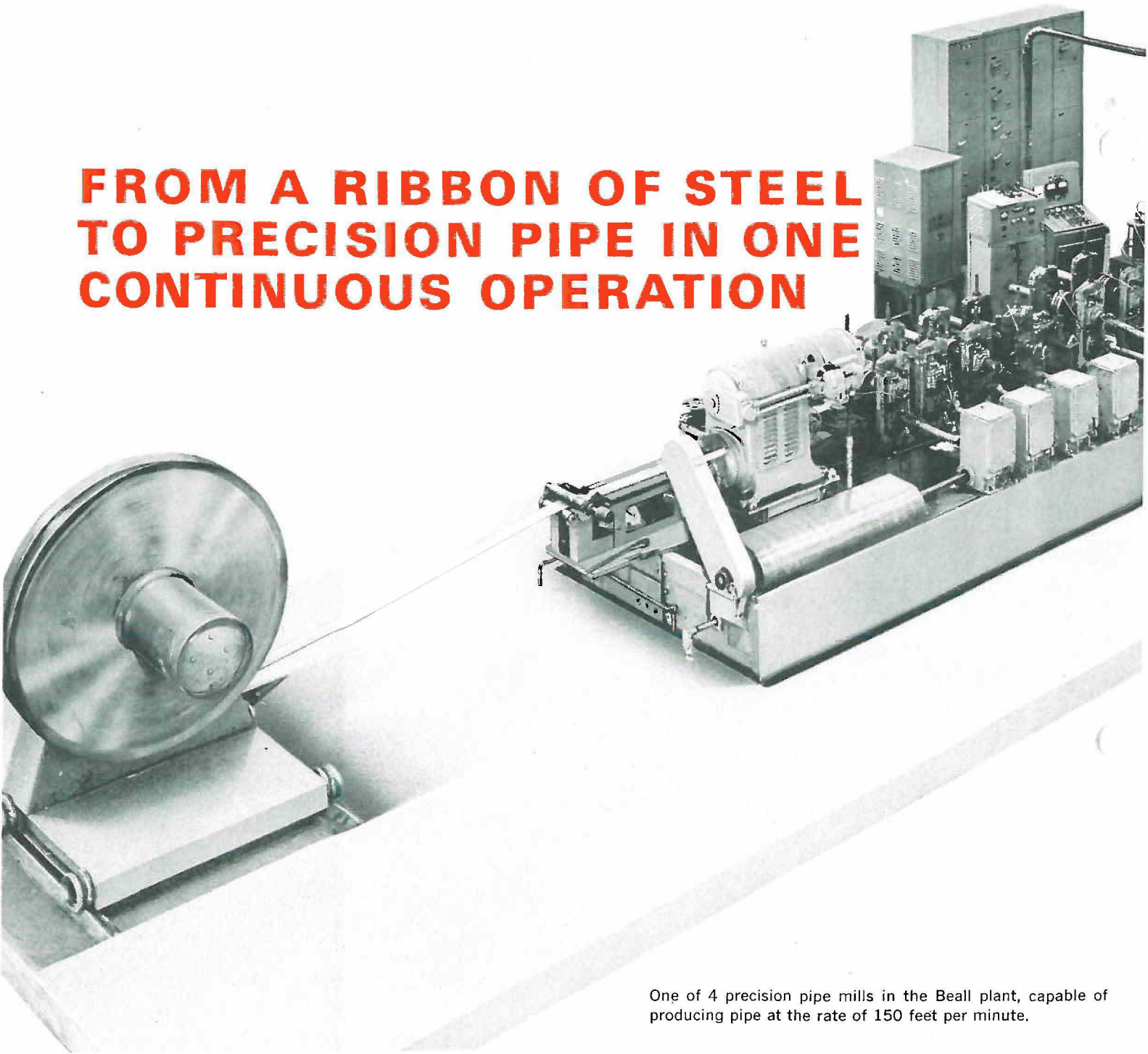
In addition to the specifications shown for large and small diameter pipe, Beall will also make pipe to customers' specifications.



Enlarged unretouched photos show grain structure of weld and adjoining area of Beall pipe.

Above: High Frequency Resistance Weld.
Below: Electric Fusion Weld.

FROM A RIBBON OF STEEL TO PRECISION PIPE IN ONE CONTINUOUS OPERATION



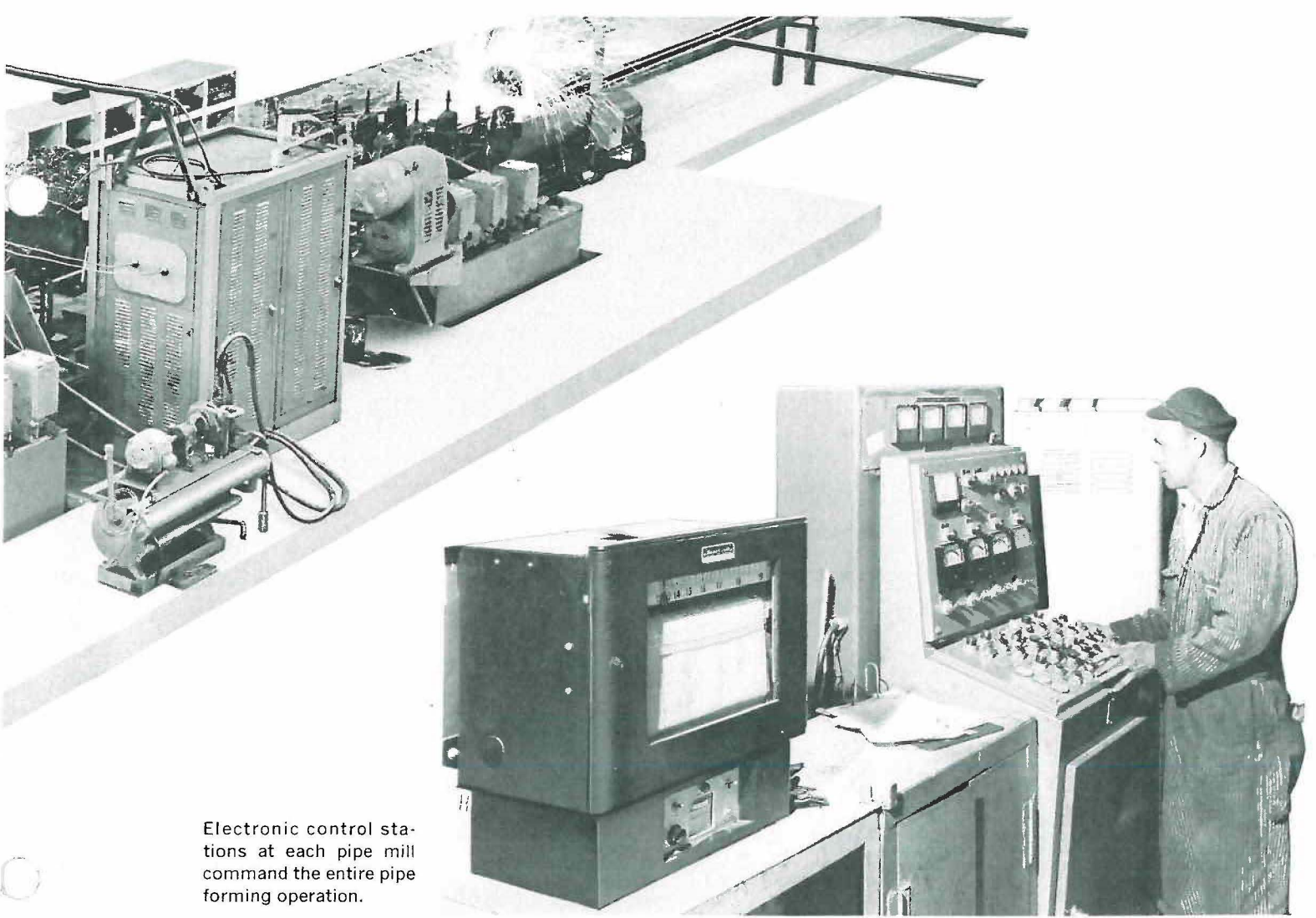
One of 4 precision pipe mills in the Beall plant, capable of producing pipe at the rate of 150 feet per minute.

WIDE RANGE OF SIZES, WEIGHTS AND PROTECTIVE COATINGS FOR ECONOMY AND EXTENDED SERVICE LIFE

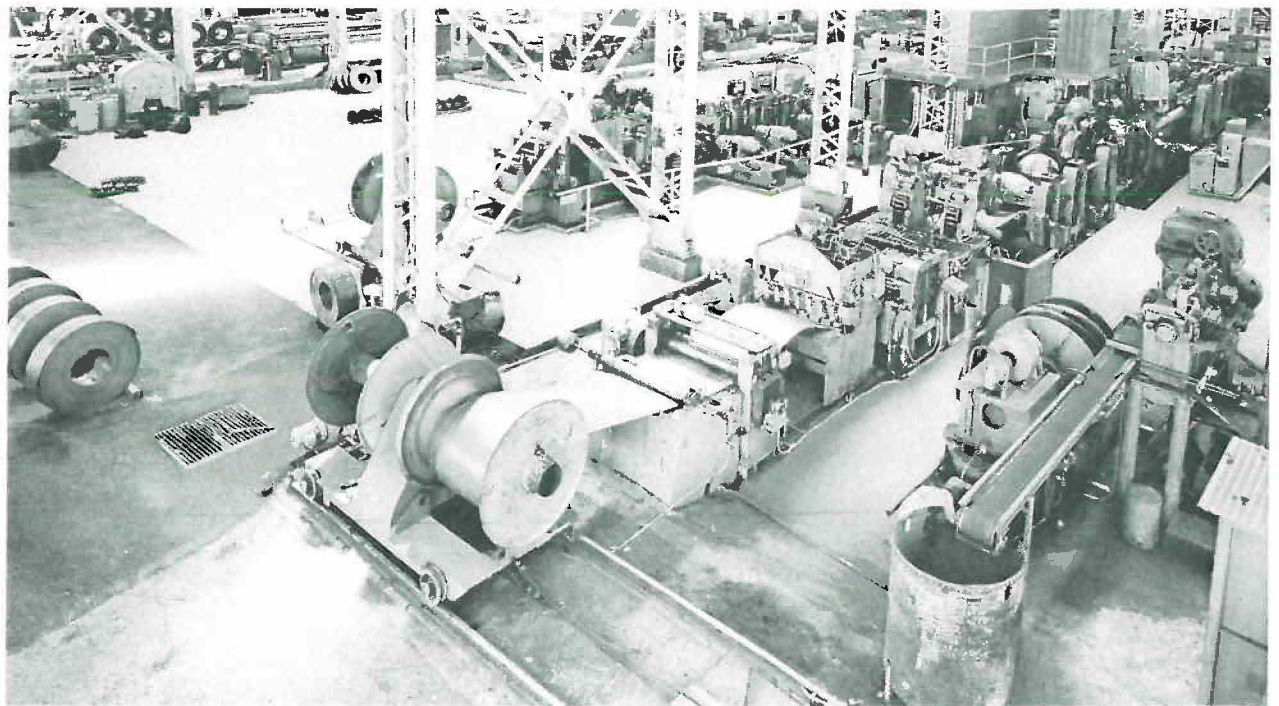
Beall welded pipe is made from special grades of steel (to specifications) in thicknesses of 14 gauge and heavier.

Pipe diameters range from 2" OD upward and are usually supplied in 40' lengths. However, on special order, pipe 3" thru 16" OD can be furnished in 65' lengths and pipe of 18" OD and over can be furnished in 48' lengths.

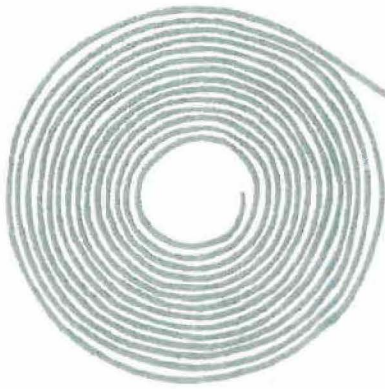
The type of protective coating required for your particular installation whether galvanized, coal tar enameled, Pioneer Mineral Rubber Asphalt, dipped and wrapped or cement mortar lined and coated can be supplied to specifications. The application of all protective coatings is subject to Beall's continuous precision control for longer life.



Electronic control stations at each pipe mill command the entire pipe forming operation.

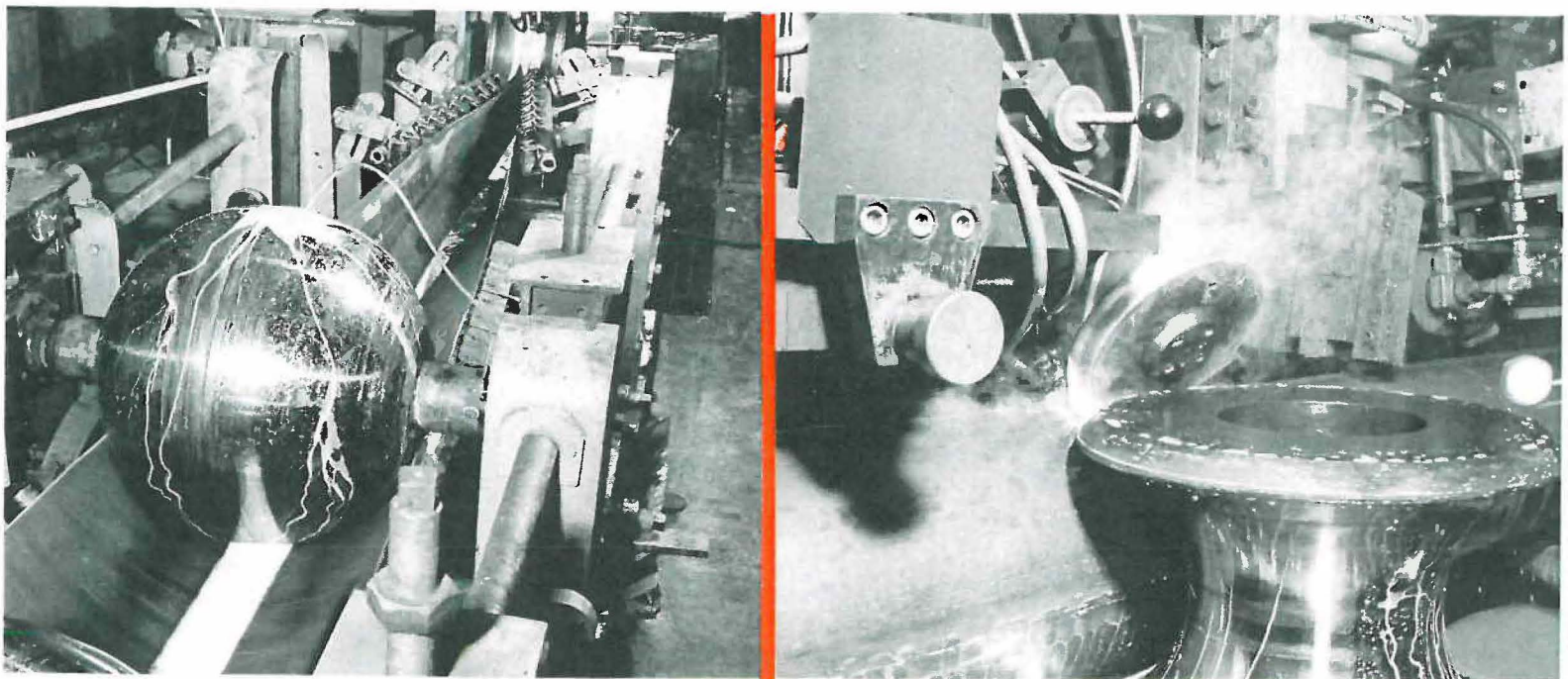


High speed pipe mills in Beall Portland plant.



PRECISION CONTROL

...your assurance of highest quality and pipe performance



PIPE FORMING

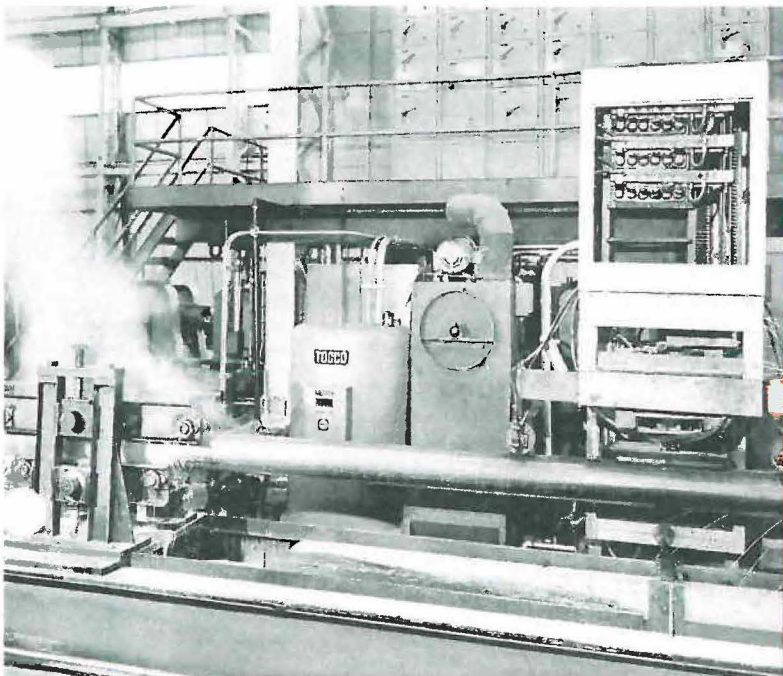
As the steel plate is uncoiled it passes between a series of hardened steel forming rollers. These rollers, exerting pressures as much as 200 tons, progressively press and form the steel strip into full round pipe of predetermined diameter.

HIGH FREQUENCY WELDING

At the moment the edges of the strip make contact with each other to form a tube, they pass into the path of the high frequency electrical resistance, which having been converted into heat actually melts and fuses the two edges together.

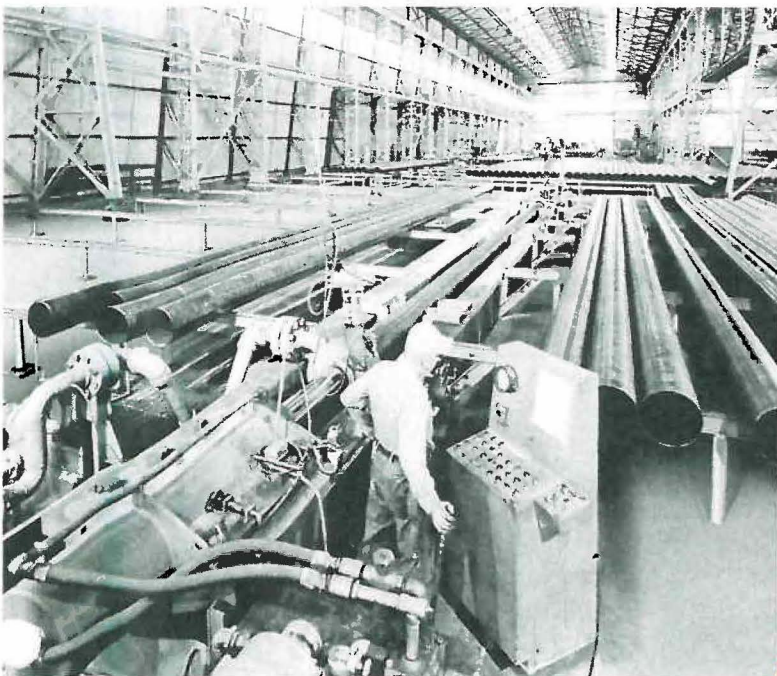
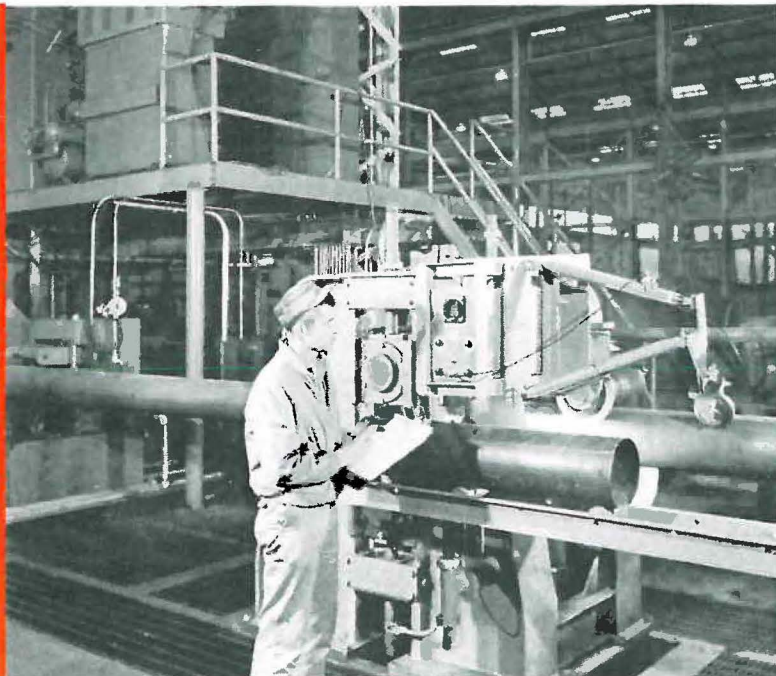
ANNEALING

After welding, all API pipe and special drawing quality tubing is post annealed in the weld area, to relieve possible weld and forming stresses. Other grades are post annealed when specified.



ULTRA SONIC TESTING

Ultra sonic inspection for hidden defects, when specified, is done after the pipe has been welded. This testing is done by high speed ultra sonic testing equipment capable of detecting the most minute flaws in the pipe or the weld, thus maintaining quality control at high rate of production.



HYDROSTATIC TESTING

In addition to the periodic laboratory spot sampling and destructive testing for quality and adherence to specifications, each length of Beall Pipe is tested hydrostatically. Hydrostatic testing and inspection is done in accordance with API 5L, API 5LX, AWWA, ASTM, FEDERAL and MILITARY specifications as required.



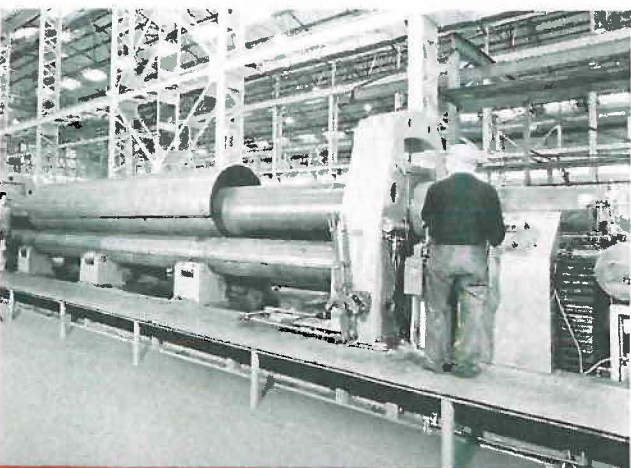
LARGE DIAMETER PIPE

Large diameter and heavy wall pipe is available for any installation. These larger sizes are roll formed to specifications and are subjected to the same quality and precision control and testing procedures of all pipe manufactured by Beall.



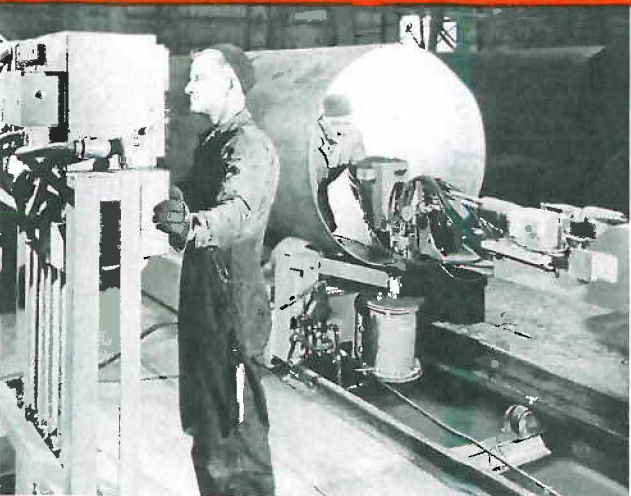
FORMING LARGE PIPE

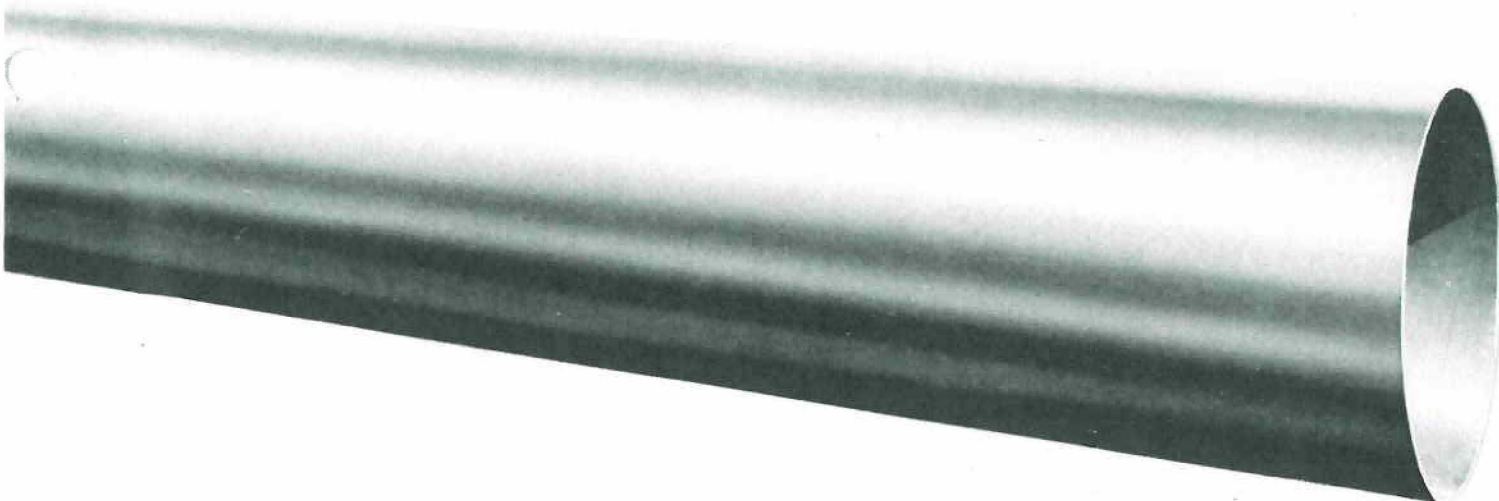
Large diameter heavy wall pipe being rolled to shape on giant pyramid forming rolls. Pipe sizes above 16" OD are formed on this equipment. Lengths of 40' and 48' are normal for these larger sizes, however, longer lengths are available upon request.



WELDING LARGE PIPE

After being roll formed, the preformed shell is then electric fusion welded. Special fixtures and controls regulate this automatic straight-line weld with precision and accuracy.





for oil, gas, product transmission lines

Beall is one of the few pipe manufacturers in the country authorized to use the A.P.I. monogram on A.P.I. Std. 5L line pipe and A.P.I. Std. 5LX high test line pipe.

Beall pipe is a non-expanded post annealed high frequency electric resistance welded steel pipe, conforming in all respects to A.P.I. 5L or A.P.I. 5LX specifications.

Extreme care is taken by Beall in the manufacture and inspection of A.P.I. pipe to maintain a high quality product in line with the standards set by the American Petroleum Institute.

Beall straight seam welded steel pipe is manufactured to meet any of the following specifications:

API 5L grade A and B

—sizes 3" nom. to 16" OD

API 5LX grade X42, X46, X52 and X60

—sizes 6" to 16" OD

A full range of sizes and gauges as shown on the following chart is available as are special sizes. Ultra sonic inspection is made on all Beall pipe when specified. Coatings and end finishes are furnished to specifications.



API PIPE

API STANDARD 5L REGULAR-WEIGHT PLAIN END LINE PIPE

Dimensions, Weights and Test Pressures

Size O.D. (Inches)	Plain-End Weight (lb./ft.)	Wall Thickness (inches)	I.D. (Inches)	Test Pressures (P.S.I.)	
				Grade A	Grade B
3½	6.63	0.188	3.124	1900	2200
3½	7.58	0.216	3.068	2200	2500
3½	8.68	0.250	3.000	2500	2500
4½	8.64	0.188	4.124	1500	1800
4½	10.00	0.219	4.062	1700	2000
4½	10.79	0.237	4.026	1900	2200
4½	11.35	0.250	4.000	2000	2300
4½	12.67	0.281	3.938	2200	2500
6⅝	12.89	0.188	6.249	1000	1200
6⅝	14.97	0.219	6.187	1200	1400
6⅝	17.02	0.250	6.125	1400	1600
6⅝	18.97	0.280	6.065	1500	1800
6⅝	21.07	0.312	6.001	1700	2000
8⅝	16.90	0.188	8.249	800	900
8⅝	19.64	0.219	8.187	900	1100
8⅝	22.36	0.250	8.125	1000	1200
8⅝	24.70	0.277	8.071	1200	1300
8⅝	27.74	0.312	8.001	1300	1500
10¾	24.60	0.219	10.312	750	850
10¾	28.04	0.250	10.250	850	1000
10¾	31.20	0.279	10.192	1000	1200
10¾	34.24	0.307	10.136	1000	1200
12¾	33.38	0.250	12.250	700	800
12¾	37.45	0.281	12.188	800	950
12¾	41.51	0.312	12.126	900	1000
14	45.68	0.312	13.376	800	950
16	52.36	0.312	15.376	700	800



API PIPE

API STANDARD 5LX HIGH-TEST PLAIN END LINE PIPE

Dimensions, Weights and Test Pressures

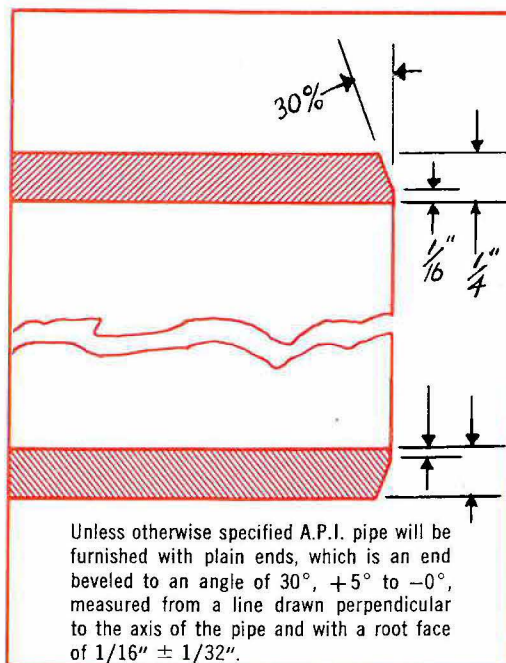
Size O.D. (Inches)	Weight (lb./ft.)	Wall Thickness (Inches)	Size I.D. (Inches)	Test Pressures (P.S.I.)		
				Grade X42	Grade X46	Grade X52
6 $\frac{5}{8}$	12.89	0.188	6.249	1790	1960	2220
6 $\frac{5}{8}$	14.97	0.219	6.187	2090	2290	2580
6 $\frac{7}{8}$	17.02	0.250	6.125	2380	2610	2950
6 $\frac{5}{8}$	18.97	0.280	6.065	2670	2920	3000
6 $\frac{5}{8}$	21.07	0.312	6.001	2970	3000	3000
8 $\frac{5}{8}$	16.90	0.188	8.249	1380	1510	1710
8 $\frac{5}{8}$	18.27	0.203	8.219	1490	1630	1840
8 $\frac{5}{8}$	19.64	0.219	8.187	1600	1760	1990
8 $\frac{5}{8}$	22.36	0.250	8.125	1830	2010	2270
8 $\frac{5}{8}$	24.70	0.277	8.071	2030	2220	2510
8 $\frac{5}{8}$	27.74	0.312	8.001	2280	2500	2830
10 $\frac{3}{4}$	21.15	0.188	10.374	1250	1370	1550
10 $\frac{3}{4}$	22.88	0.203	10.344	1350	1480	1670
10 $\frac{3}{4}$	24.60	0.219	10.312	1460	1600	1810
10 $\frac{3}{4}$	28.04	0.250	10.250	1670	1820	2060
10 $\frac{3}{4}$	31.20	0.279	10.192	1860	2030	2300
10 $\frac{3}{4}$	34.24	0.307	10.136	2040	2240	2530
12 $\frac{3}{4}$	27.22	0.203	12.344	1140	1250	1410
12 $\frac{3}{4}$	29.28	0.219	12.312	1230	1350	1520
12 $\frac{3}{4}$	33.38	0.250	12.250	1410	1540	1740
12 $\frac{3}{4}$	37.45	0.281	12.188	1580	1730	1950
12 $\frac{3}{4}$	41.51	0.312	12.126	1750	1920	2170
14	30.93	0.210	13.580	1080	1180	1330
14	32.20	0.219	13.562	1120	1230	1390
14	36.71	0.250	13.500	1280	1400	1580
14	41.21	0.281	13.438	1440	1570	1780
14	45.68	0.312	13.376	1600	1750	1980
16	36.87	0.219	15.562	980	1080	1220
16	42.05	0.250	15.500	1120	1230	1390
16	47.22	0.281	15.438	1260	1380	1560
16	52.36	0.312	15.376	1400	1530	1730



Coal tar enamel and wrap will be applied to the outside of Beall API Pipe to the customers' specifications.

API PIPE COATING

The protective finishes applied to Beall pipe are subject to the same rigid quality control exercised in the manufacture of the pipe. Thorough preliminary cleaning by shot blasting assures proper bonding of the coating. Final inspection is made by ultra sonic thickness testing gauges and electric spark gap testing equipment.



BEALL

PIPE & TANK CORP.

PORTLAND OFFICE
12005 N. Burgard, Portland 3, Oregon
Phone AVenue 6-3631

PLANTS ALSO AT:

218 N. 16th St.,
Billings, Mont.,
Phone 252-7163

225 Broadway,
Boise, Ida.,
Phone 344-3561

5701 Colorado Blvd.,
Denver, Colo.,
Phone AT 8-0739

7001 San Leandro
St., Oakland, Calif.,
Phone 569-0903

SALES OFFICES ALSO AT: Seattle • Spokane • Eugene • Klamath Falls



AWWA ASTM PIPE

for water transmission and sewer lines

Beall straight seam welded steel pipe is manufactured to meet any of the following specifications:

sizes 2" to 16" OD

AWWA C201 and C202

ASTM A135 grade A and B

ASTM A120 grade A and B

ASTM A252 grade A and B

sizes above 16" OD

AWWA C201 and C202

ASTM A130 grade A and B

ASTM A252 grade A and B

A full range of sizes and gauges as shown on the following chart is available, as are special sizes. Coatings, end finishes and connectors are furnished to specifications.



AWWA

O.D. (Inches)	Wall Thickness		I.D. (Inches)	Weight (Bare) lb./ft.	Test Pressure P.S.I.	Head	Working Pressure (12,500 P.S.I.)
	Decimal	Gage or Fraction					
2	.060	16	1.88	1.3	1120	1725	747
2	.075	14	1.85	1.5	1400	2154	933
2	.105	12	1.79	2.1	1960	3018	1307
2	.134	10	1.73	2.7	2520	3882	1681
2-3/8	.060	16	2.26	1.7	940	1450	628
2-3/8	.075	14	2.23	1.9	1175	1810	784
2-3/8	.105	12	2.17	2.7	1645	2536	1098
2-3/8	.134	10	2.11	3.4	2120	3264	1413
3	.060	16	2.88	2.0	750	1150	498
3	.075	14	2.85	2.5	930	1436	622
3	.105	12	2.79	3.4	1310	2011	871
3	.134	10	2.73	4.4	1680	2588	1121
3-1/2	.060	16	3.38	2.3	640	986	427
3-1/2	.075	14	3.35	2.9	800	1230	533
3-1/2	.105	12	3.29	4.0	1115	1725	747
3-1/2	.134	10	3.23	5.1	1480	2284	989
4	.060	16	3.88	2.7	565	870	375
4	.075	14	3.85	3.2	765	1175	510
4	.105	12	3.79	4.5	975	1500	650
4	.134	10	3.73	5.7	1260	1935	840
4-1/2	.075	14	4.35	3.6	630	965	420
4-1/2	.105	12	4.29	5.0	850	1345	565
4-1/2	.134	10	4.23	6.4	1115	1720	745
4-1/2	.188	3/16"	4.13	8.7	1540	2420	1025
5	.075	14	4.85	4.2	565	870	375
5	.105	12	4.79	5.7	790	1210	525
5	.134	10	4.73	7.3	1000	1550	670
5	.188	3/16"	4.63	10.1	1410	2175	940
6	.075	14	5.85	4.9	475	735	315
6	.105	12	5.79	6.7	670	1030	445
6	.134	10	5.73	8.6	865	1325	575
6	.188	3/16"	5.63	12.1	1150	1775	770
6-5/8	.075	14	6.47	5.4	430	655	285
6-5/8	.105	12	6.42	7.5	600	920	400
6-5/8	.134	10	6.36	9.6	760	1165	505
6-5/8	.188	3/16"	6.25	13.0	1065	1640	710
8	.075	14	7.85	6.5	355	550	235
8	.105	12	7.79	9.0	490	775	335
8	.134	10	7.73	11.6	645	1000	430
8	.188	3/16"	7.63	16.1	880	1350	585
8-5/8	.105	12	8.42	9.8	465	705	310
8-5/8	.134	10	8.36	12.5	585	900	390
8-5/8	.188	3/16"	8.25	17.4	820	1260	545
8-5/8	.250	1/4"	8.13	22.4	1090	1680	725
10	.105	12	9.79	11.3	400	620	265
10	.134	10	9.73	14.5	520	795	345
10	.188	3/16"	9.62	20.2	700	1080	465
10	.250	1/4"	9.50	26.0	940	1440	625
10-3/4	.105	12	10.54	12.2	370	565	245
10-3/4	.134	10	10.48	15.6	465	715	310
10-3/4	.188	3/16"	10.37	21.7	650	1000	435
10-3/4	.250	1/4"	10.25	28.0	870	1335	580
12	.105	12	11.79	13.6	330	515	220
12	.134	10	11.73	17.5	430	660	285
12	.188	3/16"	11.63	24.3	590	900	390
12	.250	1/4"	11.50	31.4	780	1200	520
12-3/4	.105	12	12.54	14.5	320	480	210
12-3/4	.134	10	12.48	18.6	400	610	265
12-3/4	.188	3/16"	12.37	25.9	555	855	370
12-3/4	.250	1/4"	12.25	33.4	735	1135	490
12-3/4	.312	5/16"	12.22	41.5	920	1415	615

— ASTM PIPE

O.D. (Inches)	Wall Thickness		I.D. (Inches)	Weight (Bare) lb./ft.	Test Pressure P.S.I.	Head	Working Pressure (12,500 P.S.I.)
	Decimal	Gage or Fraction					
14	.105	12	13.79	15.9	285	440	190
14	.134	10	13.73	20.4	370	565	245
14	.188	3/16"	13.63	28.4	505	775	335
14	.250	1/4"	13.50	36.7	670	1030	445
14	.312	5/16"	13.38	45.7	835	1285	555
16	.134	10	15.73	23.4	325	495	215
16	.188	3/16"	15.63	32.6	435	675	290
16	.250	1/4"	15.50	42.1	585	900	390
16	.312	5/16"	15.38	52.4	730	1125	485
18	.134	10	17.73	26.3	285	440	190
18	.188	3/16"	17.63	36.7	390	600	260
18	.250	1/4"	17.50	47.4	520	800	345
18	.312	5/16"	17.38	59.0	645	1000	430
20	.134	10	19.73	29.2	255	395	170
20	.188	3/16"	19.63	40.8	355	540	235
20	.250	1/4"	19.50	52.7	465	720	310
20	.312	5/16"	19.38	65.7	585	900	390
22	.134	10	21.73	32.2	235	360	155
22	.188	3/16"	21.63	44.9	315	490	210
22	.250	1/4"	21.50	58.1	430	655	285
22	.312	5/16"	21.38	72.4	525	815	350
24	.188	3/16"	23.63	49.0	295	450	195
24	.250	1/4"	23.50	63.4	390	600	260
24	.312	5/16"	23.38	79.1	490	750	325
24	.375	3/8"	23.25	100.3	585	905	390
26	.188	3/16"	25.63	54.0	270	415	180
26	.250	1/4"	25.50	71.6	360	555	240
26	.312	5/16"	25.38	90.5	450	690	300
26	.375	3/8"	25.25	106.7	540	835	360
28	.188	3/16"	27.63	58.9	255	390	170
28	.250	1/4"	27.50	79.1	340	515	225
28	.312	5/16"	27.38	99.7	435	645	280
28	.315	3/8"	27.25	118.9	505	775	335
30	.188	3/16"	29.63	62.3	235	360	155
30	.250	1/4"	29.50	82.6	310	480	205
30	.312	5/16"	29.38	104.5	390	600	260
30	.375	3/8"	29.25	125.4	465	720	310
32	.188	3/16"	31.63	68.8	225	340	150
32	.250	1/4"	31.50	91.7	295	450	195
32	.312	5/16"	31.38	114.3	370	565	245
32	.375	3/8"	31.25	137.9	445	680	295
34	.188	3/16"	33.63	73.7	210	320	140
34	.250	1/4"	33.50	97.8	280	425	185
34	.312	5/16"	33.38	122.6	345	530	230
34	.375	3/8"	31.25	147.9	420	645	280
36	.188	3/16"	35.63	74.7	195	300	130
36	.250	1/4"	35.50	99.2	255	400	170
36	.312	5/16"	35.38	125.4	325	500	215
36	.375	3/8"	35.25	150.6	390	600	260
42	.250	1/4"	41.50	116.5	225	345	150
42	.312	5/16"	41.38	147.4	280	430	185
42	.375	3/8"	41.25	177.0	330	515	220
48	.250	1/4"	47.50	133.0	195	300	130
48	.312	5/16"	47.38	168.3	240	375	160
48	.375	3/8"	47.25	202.2	295	450	195
54	.312	5/16"	53.38	189.1	220	335	145
54	.375	3/8"	53.25	227.3	265	400	175
60	.312	5/16"	59.38	207.8	195	300	130
60	.375	3/8"	59.25	249.8	235	360	155



PROTECTIVE COATINGS EXTEND PIPE SERVICE LIFE

Beall pipe is available in a variety as well as a combination of linings and coatings to meet all specifications for varying service conditions. These protective coatings are applied under rigidly controlled conditions. Inspection is made with thickness gauges and electric spark gap testing equipment to assure complete coverage and adequate coating thickness.

In addition to the various applied coatings, Beall high frequency resistance welded pipe can be furnished in 14, 12, or 10 gauge cold rolled galvanized with hot zinc coating at the weld. This completely protected galvanized water pipe is supplied in sizes 2 $\frac{3}{8}$ " OD to 16" OD.

SHOT BLASTING

Each length of pipe, prior to coating, with coal tar enamel, is shot blasted. By this process, all foreign matter, including rust and mill scale, is removed from the surface to be coated. This cleaning and smoothing operation imparts a finish to the pipe which is highly receptive to the coatings.

COAL TAR ENAMEL COATING

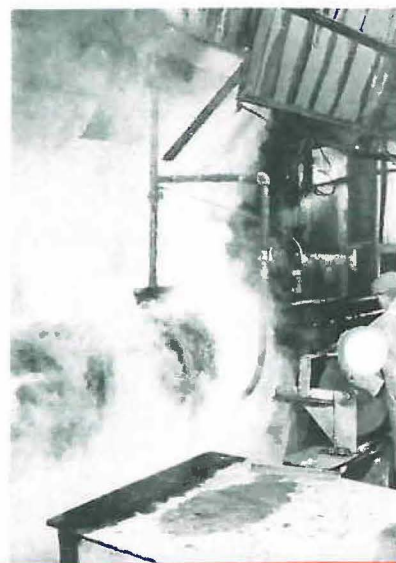
The shot blasting, priming with coal tar primer, and enameling with coal tar enamel is done in accordance with A.W.W.A. specifications. After the enamel has cooled, it is tested by an electric spark gap machine to assure perfect protection to the steel pipe. This coating is the *finest* protective lining and coating available.

HOT PIONEER MINERAL RUBBER ASPHALT DIPPING

Pipe in lengths up to 48' can be dipped in superheated Pioneer Mineral Rubber Asphalt in Beall's vertical dipping vat. Pre-heated for proper bonding, pipe coated with P.M.R., a Gilsontite product, is protected with a material having a "service record" unequalled by any other asphaltic material used for similar purposes. This coating is malleable at all temperatures and will not flake or scale in cold weather or drip and run if exposed to the sun's direct rays. The protection is equally complete whether the pipe is exposed to the weather or buried in the soil. P.M.R. coating is odorless and tasteless.

PROTECTIVE WRAPPING

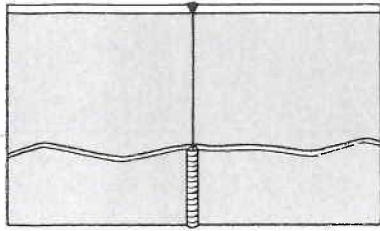
Proper wrapping of the pipe is very important. Beall uses 23 $\frac{1}{2}$ pound asbestos pipeline felt which is saturated with selected asphalt, or a coal tar wrap which is a 13 $\frac{1}{2}$ pound asbestos felt impregnated with coal tar. As the asbestos felt is wrapped in a spiral around the pipe at high speed, melted asphalt or coal tar is applied in a continuous flow between the pipe and the wrapping paper, giving lasting protection against corrosion. Other types of wrap are available on request.



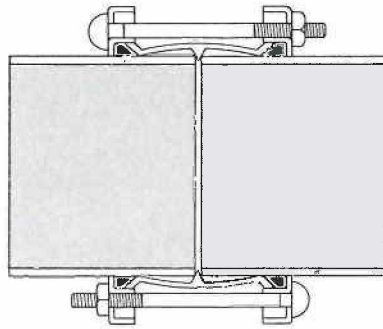


END FINISHES FOR AWWA AND ASTM PIPE

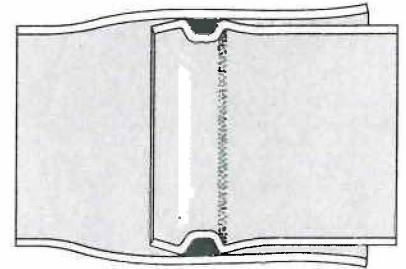
Beall AWWA and ASTM Pipe is available in all of the common end finishes. Ends can be formed or fitted for special connectors.



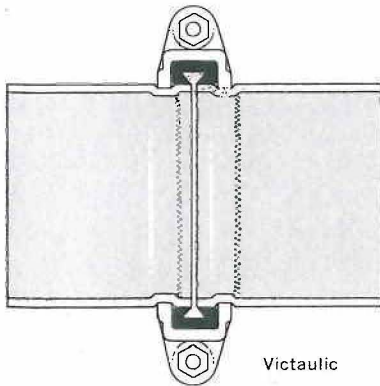
Weld End, Beveled



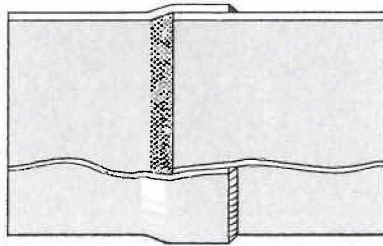
Dresser, Bolted



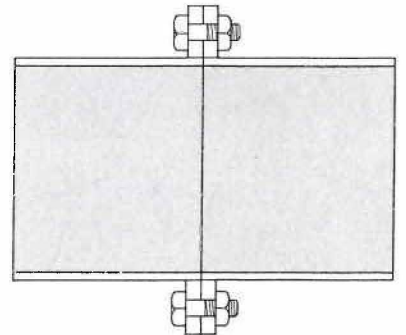
Bell and Spigot, for "O" Ring Gasket



Victaulic



Bell and Spigot, Slip Joint

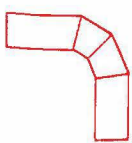


Flanged

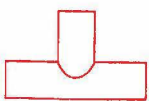


FITTINGS FOR AWWA AND ASTM PIPE

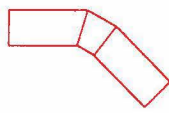
Shop fabricated fittings, in steels to match the pipe and with identical protective coatings can be furnished in all the standard patterns. Regardless of the type of fitting required, any "specials" can be made to specifications.



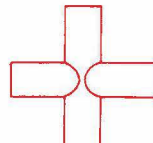
90° Elbow



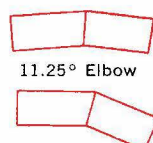
Tee



45° Elbow

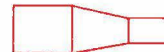


Cross

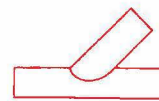


11.25° Elbow

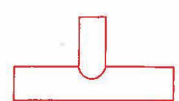
22.5° Elbow



Reducer



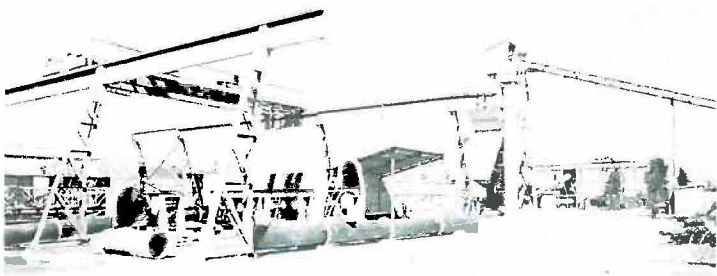
Wye



Reducer Tee



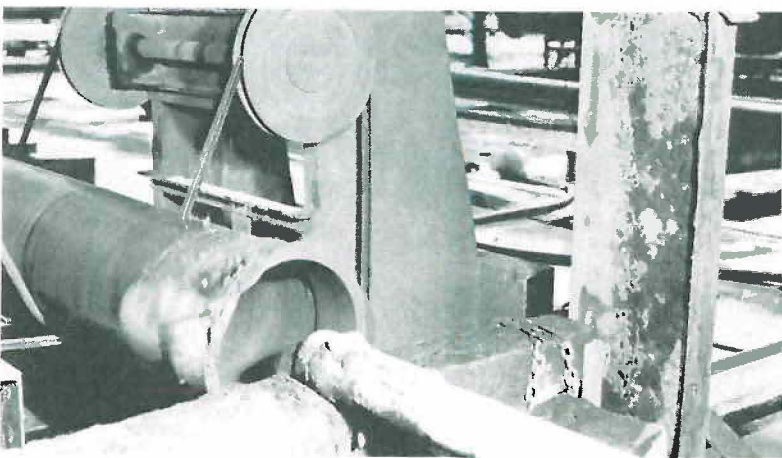
CEMENT MORTAR LINED AND REINFORCED MORTAR COATED PIPE



*Meets Federal Interim
Specifications SS-P-00385 with
design pressures from 100 PSI to 400 PSI*

Cement mortar is a dual purpose protective coating. In addition to its corrosion resistance qualities, cement mortar rigidizes and strengthens the pipe. Beall cement mortar lined and reinforced mortar coated pipe is made in lengths to 40 feet with pressure ratings from 100 PSI to 400 PSI. Special sizes and design pressures can be produced as specified.

Care is taken in securing, storing and mixing the components for Beall's cement mortar lined and coated pipe. Only the finest material available is used to produce a lined and coated pipe with unsurpassed qualities. The same quality control is exercised in the application of cement mortar lining and coating as is exercised in forming and other coating processes at the Beall plant.

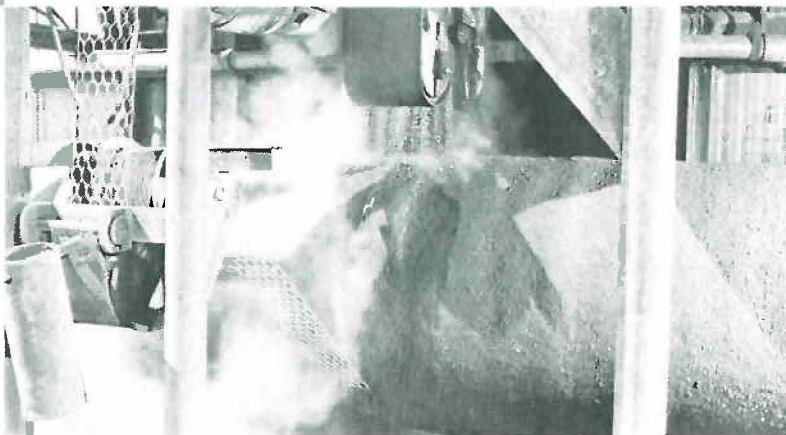


CEMENT MORTAR LINING

After the cement mortar is mixed to established requirements, the lance is thrust into the steel pipe and withdrawn at a pre-determined rate depositing a precise amount of mortar. When the pipe is spun, centrifugal force on the mortar produces a lining which is uniform in thickness, has an excellent bond, is dense, well compacted and smooth.

REINFORCED MORTAR COATING

The reinforced mortar coating is applied in accordance with Interim Federal Specification SS-P-00385 and is applied to the exterior of the rotating pipe by high pressure spray. Wire fabric or cold drawn steel wire is helically wound onto the pipe concurrently with the application of the cement-mortar coating near the center of the coating.





Cross section of Beall cement mortar lined and coated pipe showing compact texture of lining and mortar bond with the metal.

RECOMMENDED CEMENT MORTAR LINING AND COATING THICKNESSES FOR PIPE OF VARYING DIAMETERS, GAUGES AND WORKING PRESSURES.

Nominal inside diameter of pipe (inches)	Lining thickness (inches)	Coating thickness (inches, minimum)	*Nominal steel cylinder thickness—inches						
			Class 100	Class 150	Class 200	Class 250	Class 300	Class 350	Class 400
4	5/16	1/2	.0747	.0747	.0747	.0747	.0747	.0747	.0747
6	5/16	1/2	.0747	.0747	.0747	.0747	.0747	.1046	.1046
8	5/16	1/2	.0747	.0747	.0747	.0747	.1046	.1046	.1345
10	5/16	1/2	.0747	.0747	.0747	.1046	.1345	.1345	.1875
12	5/16	1/2	.0747	.0747	.1046	.1345	.1345	.1875	.1875
14	3/8	5/8	.0747	.1046	.1046	.1345	.1875	.1875	.2500
16	3/8	5/8	.0747	.1046	.1345	.1875	.1875	.2500	.2500
18	3/8	5/8	.0747	.1046	.1345	.1875	.2500	.2500	.3125
20	1/2	3/4	.0747	.1345	.1875	.1875	.2500	.3125	.3125
21	1/2	3/4	.0747	.1345	.1875	.1875	.2500	.3125	.3125
22	1/2	3/4	.1046	.1345	.1875	.2500	.2500	.3125	.3750
24	1/2	3/4	.1046	.1345	.1875	.2500	.3125	.3125	.3750
26	1/2	3/4	.1046	.1875	.1875	.2500	.3125	.3750	.3750
27	1/2	3/4	.1046	.1875	.2500	.2500	.3125	.3750	.4375
28	1/2	3/4	.1046	.1875	.2500	.2500	.3125	.3750	.4375
30	1/2	3/4	.1046	.1875	.2500	.3125	.3750	.3750	.4375
32	1/2	3/4	.1345	.1875	.2500	.3125	.3750	.4375	.5000
33	1/2	3/4	.1345	.1875	.2500	.3125	.3750	.4375	.5000
34	1/2	3/4	.1345	.1875	.2500	.3125	.3750	.4375	.5000
36	1/2	3/4	.1345	.1875	.2500	.3750	.4375	.5000	.5625
38	1/2	3/4	.1345	.2500	.3125	.3750	.4375	.5000	.5625
39	1/2	3/4	.1875	.2500	.3125	.3750	.4375	.5000	.5625
40	1/2	3/4	.1875	.2500	.3125	.3750	.4375	.5000	.6250
42	1/2	3/4	.1875	.2500	.3125	.3750	.5000	.5625	.6250

*The minimum thickness of steel cylinders shall not be less than No. 14 gauge (0.0747 inch).



Photo of inside surface finish of Beall cement mortar lined pipe. This smooth, dense surface reduces flow resistance to minimum.

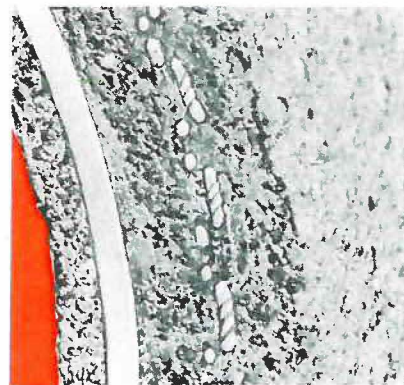
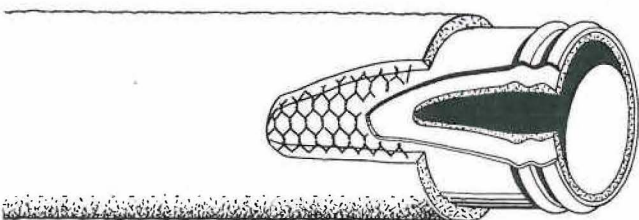
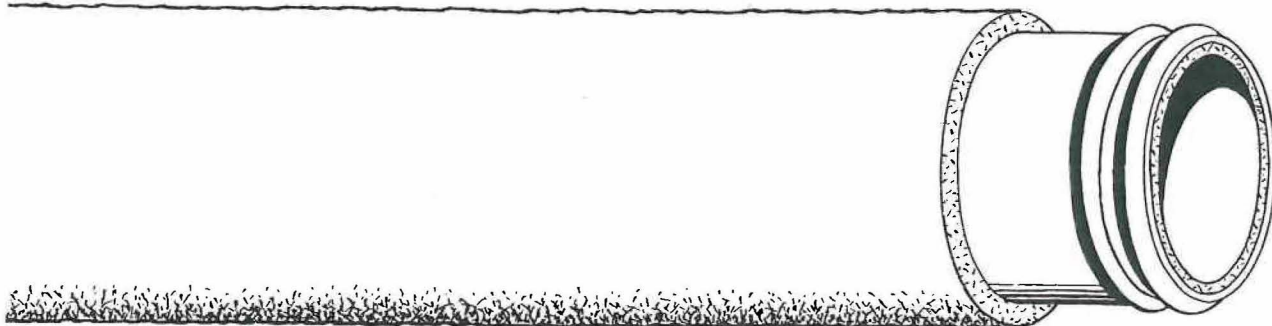


Photo of exterior surface finish of Beall mortar coated pipe. High pressure spray coating produces compact coating free from excessive voids.

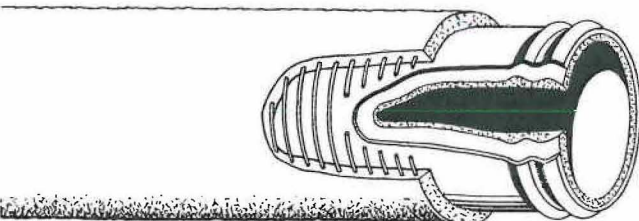


PIPE IS AVAILABLE IN A VARIETY OF CEMENT MORTAR LINING AND COATING COMBINATIONS



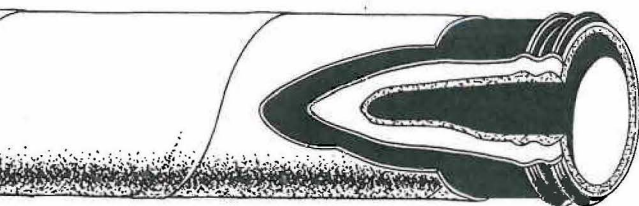
CEMENT MORTAR LINED AND WIRE MESH REINFORCED CEMENT MORTAR COATED PIPE

Wire mesh imbedded in the exterior coating gives the coating added strength to resist damage from uneven bedding and handling abuses.



CEMENT MORTAR LINED AND SPIRALLY WOUND WIRE REINFORCED MORTAR COATED PIPE

Further strengthening of the exterior coating is provided by the use of pre-stressed wire wrapping imbedded between successive applications of mortar.



CEMENT MORTAR LINED AND COAL TAR OR PIONEER MINERAL RUBBER ASPHALT COATED AND WRAPPED PIPE

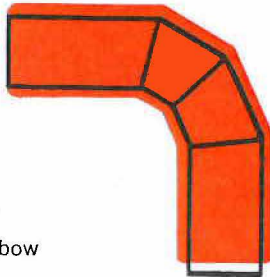
Soil conditions and installation facilities may be such that cement mortar lining can be used in combination with either coal tar enamel or Pioneer Mineral Rubber Asphalt coating. Either of these combinations offer an economical long life protection to the matchless qualities of welded steel pipe.



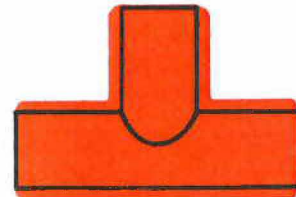
CEMENT MORTAR LINED AND COATED PIPE FITTINGS

Fabricated to match your engineered pipeline or special installation requirement. All of the standard tees, wyes, crosses, reducers, etc., as well as "special" fittings can be furnished in any combination of lining and coatings with end finishes to your specifications.

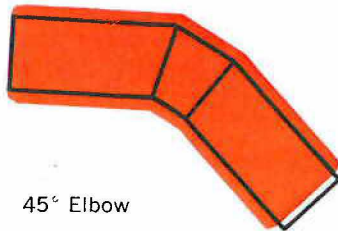
90° Elbow



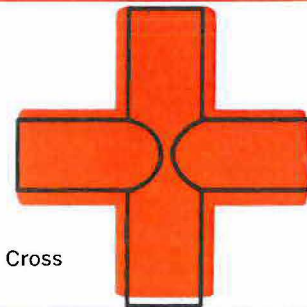
Tee



45° Elbow



Cross



11.25° Elbow



22.5° Elbow



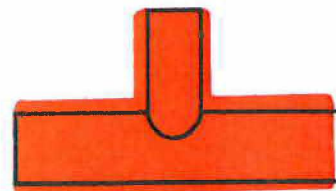
Reducer



Wye



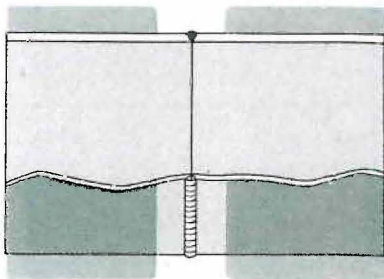
Reducer Tee



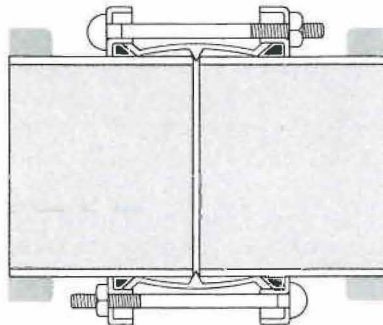


END FINISHES FOR CEMENT MORTAR LINED AND COATED PIPE

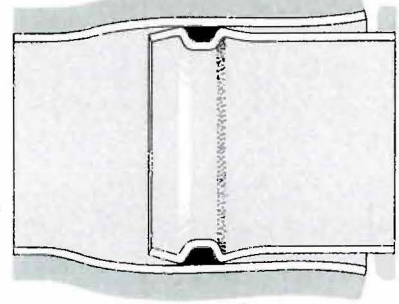
End finishes for cement mortar lined and coated pipe are usually fabricated for either rubber compression ring ("O" Ring) or bolted flange construction. However, end finishes for welding or any patented coupler system can be provided to specifications.



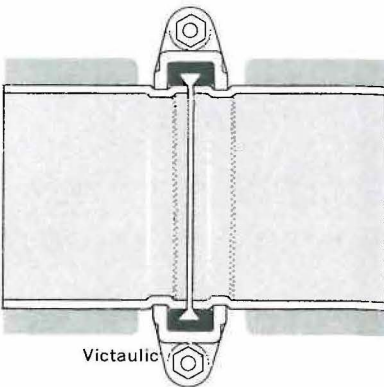
Weld End, Beveled



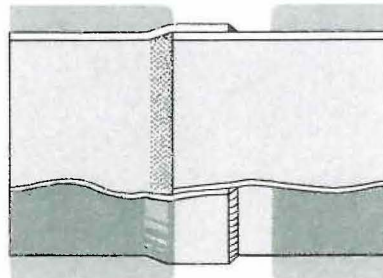
Dresser, Bolted



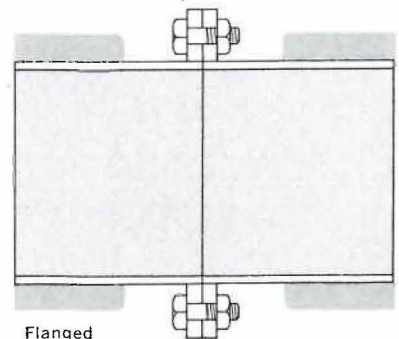
Bell and Spigot, for "O" Ring Gasket



Victaulic



Bell and Spigot, Slip Joint



Flanged



PIPE & TANK CORP.

PORTLAND OFFICE
12005 N. Burgard, Portland 3, Oregon
Phone AVenue 6-3631

PLANTS ALSO AT:

218 N. 16th St.,
Billings, Mont.,
Phone 252-7163

225 Broadway,
Boise, Ida.,
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5701 Colorado Blvd.,
Denver, Colo.,
Phone AT 8-0739

7001 San Leandro
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PIPE FOR IRRIGATION

WELDED STEEL
PLAIN, GALVANIZED
OR COATED

Whether used for above or underground installation, Beall pipe makes a lasting, low-cost installation for mainlines and laterals. Beall irrigation pipe is available in the following types: High frequency resistance welded mild steel, bare or coated; High frequency resistance welded 16, 14, 12, or 10 gauge cold rolled galvanized steel, with hot zinc coating over the weld. (See chart on following page for sizes, gauges, etc.)

Protective coatings can further increase the service life of the pipe. End finishes to take most standard and quick-acting couplings can be furnished. All standard fittings including a full range of reducer tees are available.



WELDED STEEL IRRIGATION PIPE

PLAIN • GALVANIZED • COATED

O.D. (Inches)	Wall Thickness Gauge or Fraction	WEIGHT—LB./FT.			Head	Working Pressure (12,500 P.S.I.)
		(Bare)	Dipped	Dipped and Wrapped		
2	16	1.3	1.6	1.7	1725	747
2	14	1.5	1.8	1.9	2154	933
2	12	2.1	2.4	2.5	3018	1307
2	10	2.7	3.0	3.1	3882	1681
2-3/8	16	1.7	2.0	2.1	1450	628
2-3/8	14	1.9	2.2	2.3	1810	784
2-3/8	12	2.7	3.0	3.1	2536	1098
2-3/8	10	3.4	3.7	3.8	3264	1413
3	16	2.0	2.4	2.6	1150	498
3	14	2.5	2.9	3.1	1436	622
3	12	3.4	3.8	4.0	2011	871
3	10	4.4	4.8	5.0	2588	1121
3-1/2	16	2.3	2.8	3.0	986	427
3-1/2	14	2.9	3.4	3.6	1230	533
3-1/2	12	4.0	4.5	4.7	1725	747
3-1/2	10	5.1	5.6	5.8	2284	989
4	16	2.7	3.3	3.5	870	375
4	14	3.2	3.8	4.0	1175	510
4	12	4.5	5.1	5.3	1500	650
4	10	5.7	6.3	6.5	1935	840
4-1/2	14	3.6	4.3	4.5	965	420
4-1/2	12	5.0	5.7	5.9	1345	565
4-1/2	10	6.4	7.1	7.3	1720	745
4-1/2	3/16"	8.7	9.4	9.6	2420	1025
5	14	4.2	5.0	5.3	870	375
5	12	5.7	6.5	6.8	1210	525
5	10	7.3	8.1	8.4	1550	670
5	3/16"	10.1	10.9	11.2	2175	940
6	14	4.9	5.8	6.1	735	315
6	12	6.7	7.6	7.9	1030	445
6	10	8.6	9.6	9.9	1325	575
6	3/16"	12.1	12.8	13.1	1775	770
6-5/8	14	5.4	6.4	6.8	655	285
6-5/8	12	7.5	8.5	8.9	920	400
6-5/8	10	9.6	10.7	11.1	1165	505
6-5/8	3/16"	13.0	14.1	14.5	1640	710
8	14	6.5	7.5	8.0	550	235
8	12	9.0	10.3	10.8	775	335
8	10	11.6	12.8	13.3	1000	430
8	3/16"	16.1	17.3	18.0	1350	585
8-5/8	12	9.8	11.2	11.7	705	310
8-5/8	10	12.5	13.8	14.3	900	390
8-5/8	3/16"	17.4	18.7	19.2	1260	545

O.D. (Inches)	Wall Thickness Gauge or Fraction	WEIGHT—LB./FT.			Head	Working Pressure (12,500 P.S.I.)
		(Bare)	Dipped	Dipped and Wrapped		
8-5/8	1/4"	22.4	23.7	24.2	1680	725
10	12	11.3	12.9	13.5	620	265
10	10	14.5	16.1	16.7	795	345
10	3/16"	20.2	21.8	22.4	1080	465
10	1/4"	26.0	27.5	28.1	1440	625
10-3/4	12	12.2	13.9	14.6	565	245
10-3/4	10	15.6	17.3	18.0	715	310
10-3/4	3/16"	21.7	23.4	24.1	1000	435
10-3/4	1/4"	28.0	29.6	30.3	1335	580
12	12	13.6	15.5	16.2	515	220
12	10	17.5	19.4	20.1	660	285
12	3/16"	24.3	25.2	25.9	900	390
12	1/4"	31.4	33.3	34.0	1200	520
12-3/4	12	14.5	16.5	17.2	480	210
12-3/4	10	18.6	20.6	21.3	610	265
12-3/4	3/16"	25.9	27.9	28.6	855	370
12-3/4	1/4"	33.4	35.4	36.1	1135	490
12-3/4	5/16"	41.5	43.5	44.2	1415	615
14	12	15.9	18.1	18.9	440	190
14	10	20.4	22.6	23.5	565	245
14	3/16"	28.4	30.7	31.5	775	335
14	1/4"	36.7	38.9	39.7	1030	445
14	5/16"	45.7	47.9	48.7	1285	555
16	10	23.4	25.9	27.4	495	215
16	3/16"	32.6	35.1	36.6	675	290
16	1/4"	42.1	44.6	46.1	900	390
16	5/16"	52.4	54.9	57.4	1125	485
18	10	26.3	29.2	30.9	440	190
18	3/16"	36.7	39.5	41.2	600	260
18	1/4"	47.4	50.2	51.9	800	345
18	5/16"	59.0	61.8	65.3	1000	430
20	10	29.2	32.5	34.2	395	170
20	3/16"	40.8	44.1	45.8	540	235
20	1/4"	52.7	56.1	57.8	720	310
20	5/16"	65.7	69.1	73.0	900	390
22	10	32.2	35.9	37.8	360	155
22	3/16"	44.9	48.6	50.5	490	210
22	1/4"	58.1	61.8	63.7	655	285
22	5/16"	72.4	76.1	80.4	815	350
24	3/16"	49.0	53.0	55.1	450	195
24	1/4"	63.4	67.4	69.5	600	260
24	5/16"	79.1	83.1	87.8	750	325



PROTECTIVE COATINGS FOR BEALL IRRIGATION PIPE

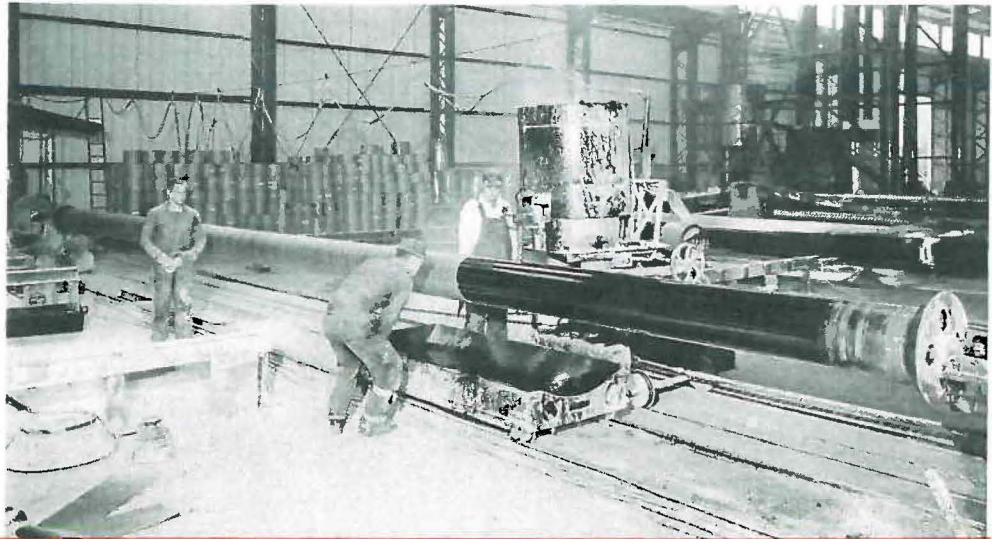
Beall welded steel irrigation pipe can be furnished either bare or coated. Protective coatings may be of hot coal tar enamel or Pioneer Mineral Rubber asphalt. Also, any combination of coating and asbestos felt wrapping is available.

ABOVE

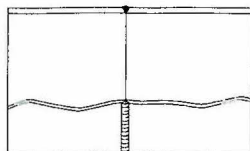
Beall pipe being removed from vertical dipping vat of superheated Pioneer Mineral Rubber Asphalt.

AT RIGHT

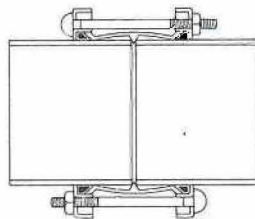
Asphalt saturated asbestos felt wrapping is bonded to pipe with hot Pioneer Mineral Rubber Asphalt.



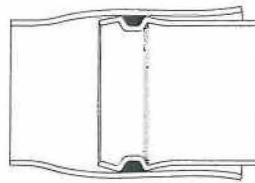
PIPE ENDS FINISHED FOR ALL CUSTOMARY AND PATENT COUPLER JOINING METHODS



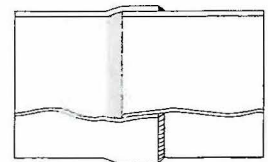
Weld End, Beveled



Dresser, Bolted



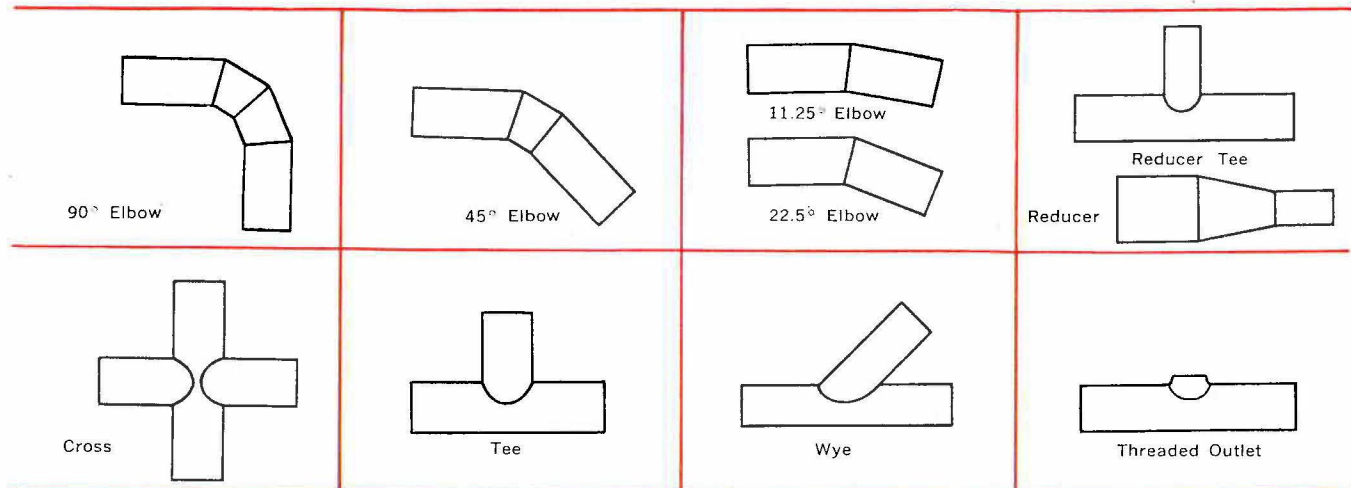
Bell and Spigot,
for "O" Ring Gasket



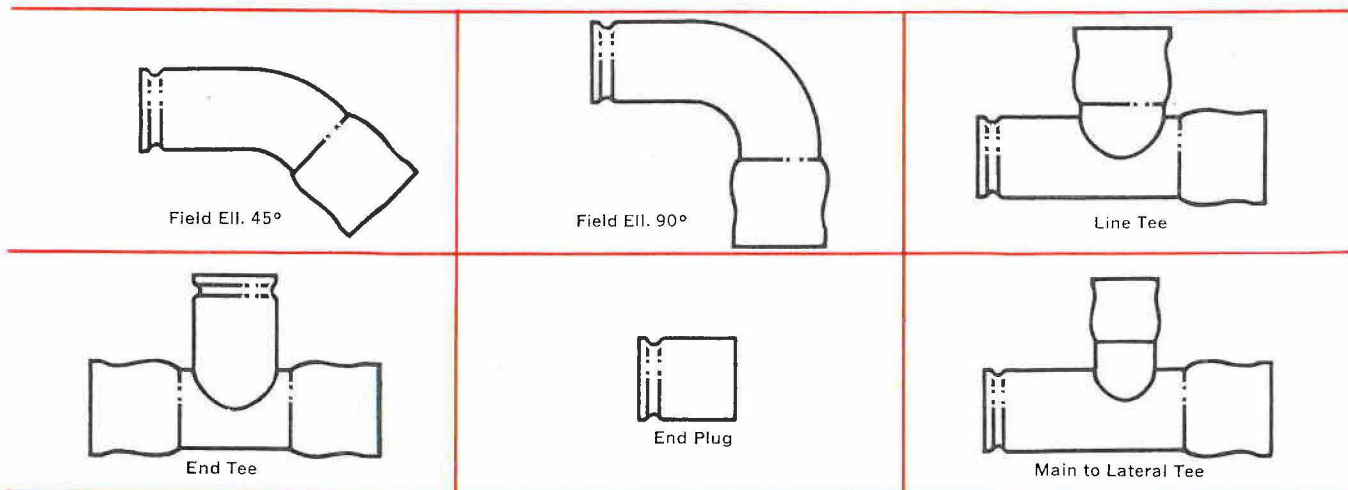
Bell and Spigot, Slip Joint

FABRICATED FITTINGS FOR BEALL IRRIGATION PIPE

Shop fabricated fittings in all the standard designs are made of the same material as the pipe. These fittings are also available coated or coated and wrapped to match the pipe specifications. Special fittings with lateral reducers are supplied on order.



GALVANIZED "O" RING FITTINGS FOR BEALL TYPE IRRIGATION PIPE



PIPE & TANK CORP.

PORTLAND OFFICE
12005 N. Burgard, Portland 3, Oregon
Phone AVenue 6-3631

PLANTS ALSO AT:

218 N. 16th St.,
Billings, Mont.,
Phone 252-7163

225 Broadway,
Boise, Ida.,
Phone 344-3561

5701 Colorado Blvd.,
Denver, Colo.,
Phone AT 8-0739

7001 San Leandro
St., Oakland, Calif.,
Phone 569-0903

SALES OFFICES ALSO AT: Seattle • Spokane • Eugene • Klamath Falls

EXHIBIT S-24-1.3